

FIG. 1



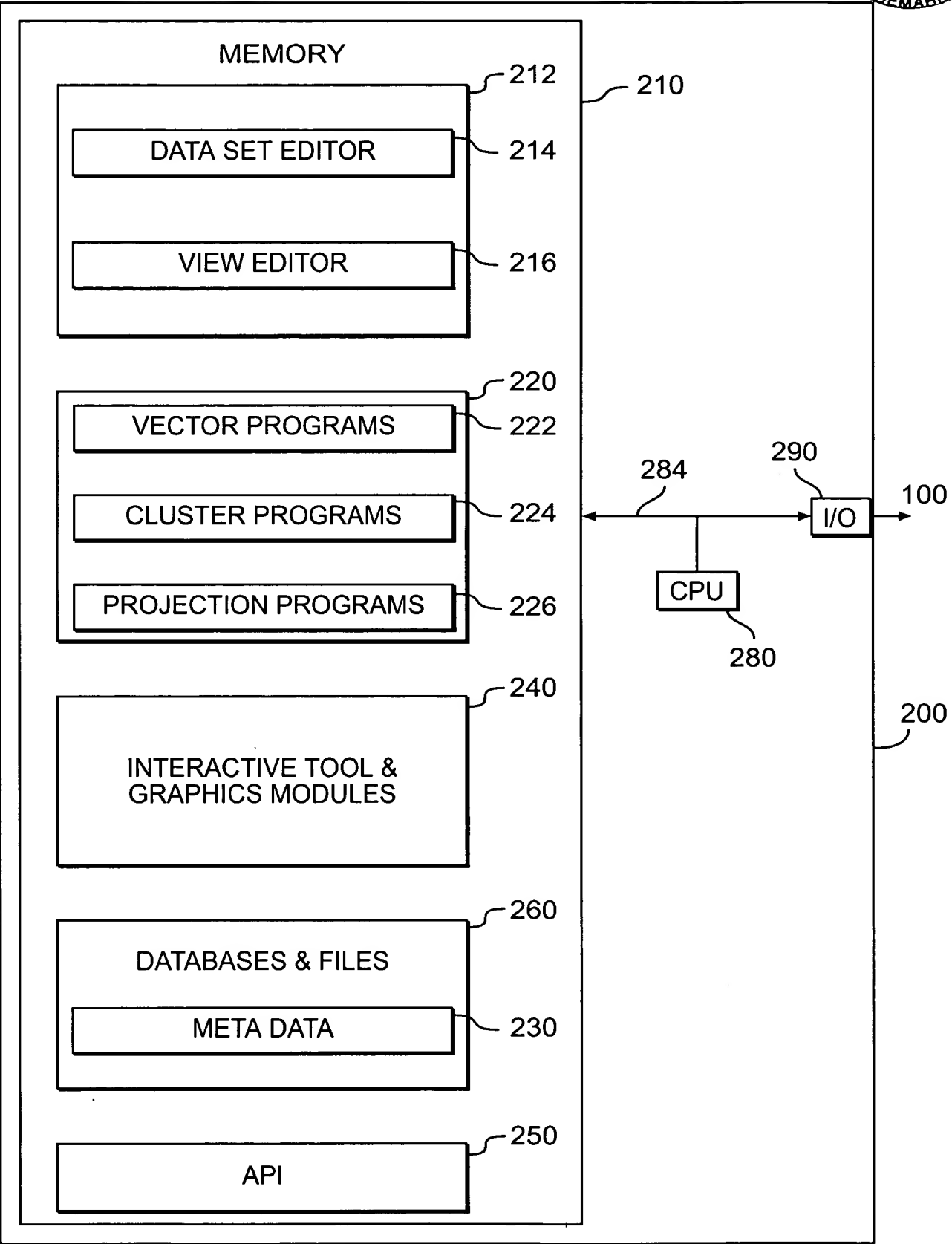


FIG. 2A

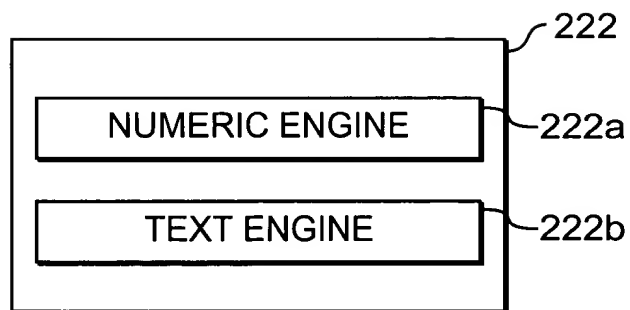
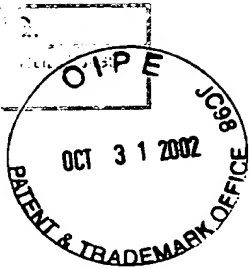


FIG. 2B

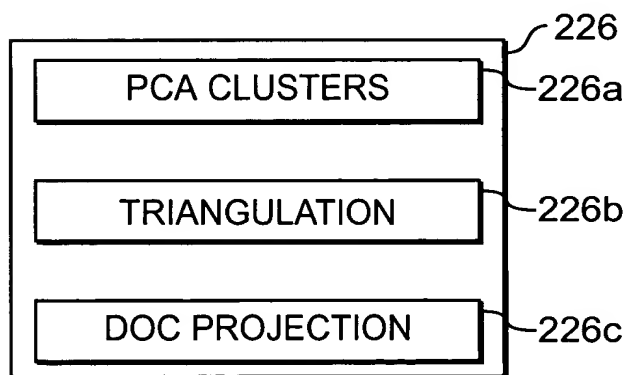


FIG. 2D

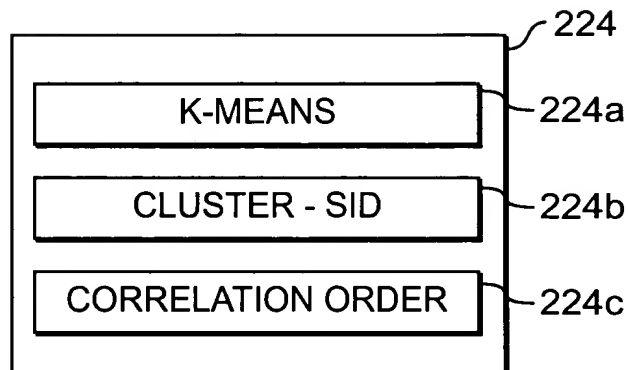


FIG. 2C

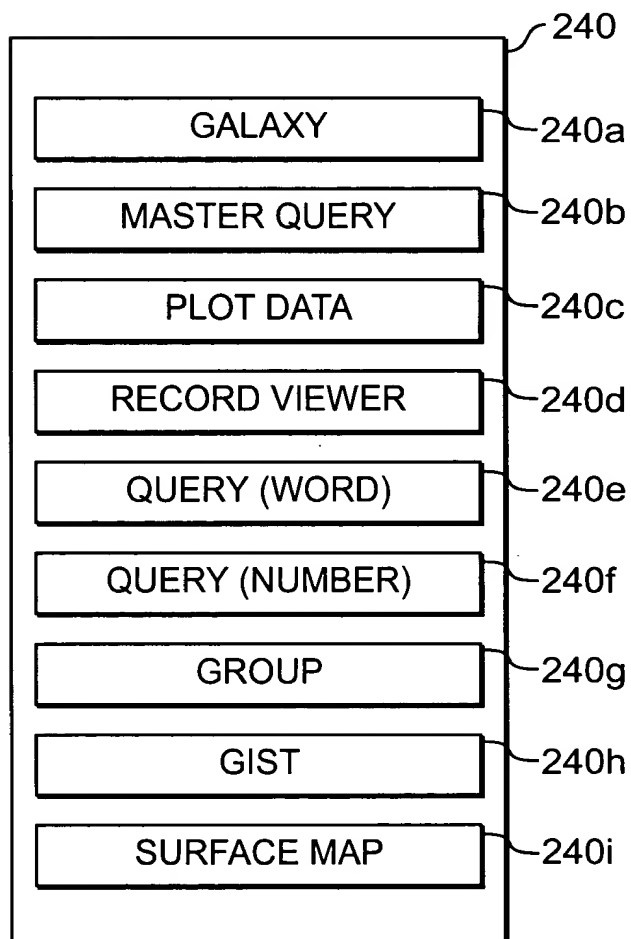


FIG. 2E

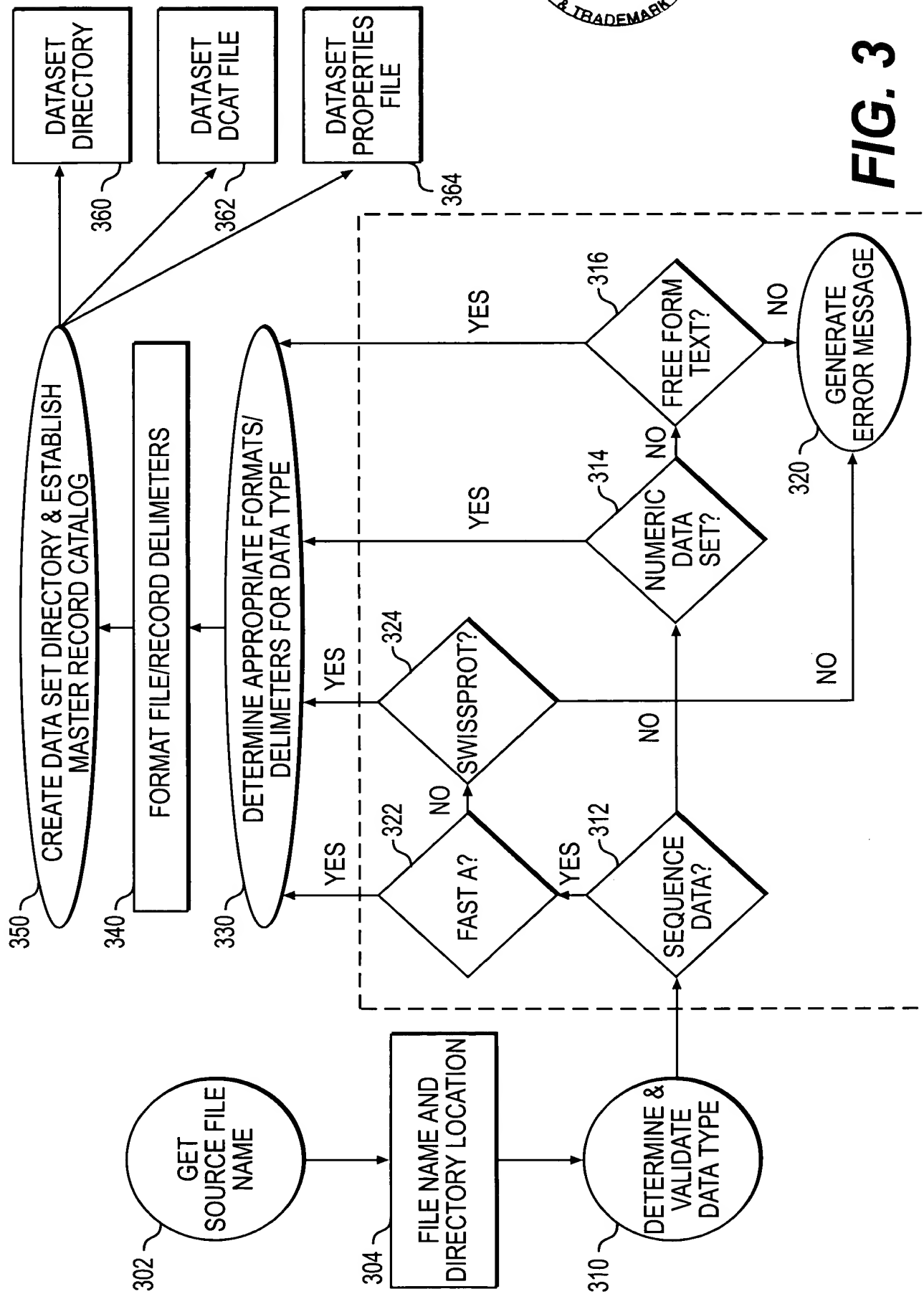


FIG. 3



400

410

NEW DATA SET

1. SOURCES

2. FORMAT

DATA SET NAME:

TEXT.1

DATA SET TYPE:

☐ ARRAY DATA

☒ PROTEIN OR NUCLEOTIDE SEQUENCES

☐ TEXT

DATA SET SOURCES:

/HOME/BATTELLE/OMNIVIZ_DATA/SOURCES/YEAST.CELL.CYCLE/CC.PROT.785.FASTA

ADD ...

VIEW...

DELETE

CANCEL

SAVE DATA SET

CONTINUE TO NEW VIEW

HELP

426

428

424

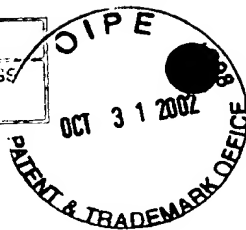


FIG. 4A

440

NEW DATA SET

1. SOURCES 2. FORMAT

FIELD DELIMITER:

☐ COLON

☐ COMMA

☐ SPACE

☒ TAB

☐ USER DEFINED USER DEFINED DELIMITER:

CANCEL SAVE DATA SET CONTINUE TO NEW VIEW HELP

442



FIG. 4B

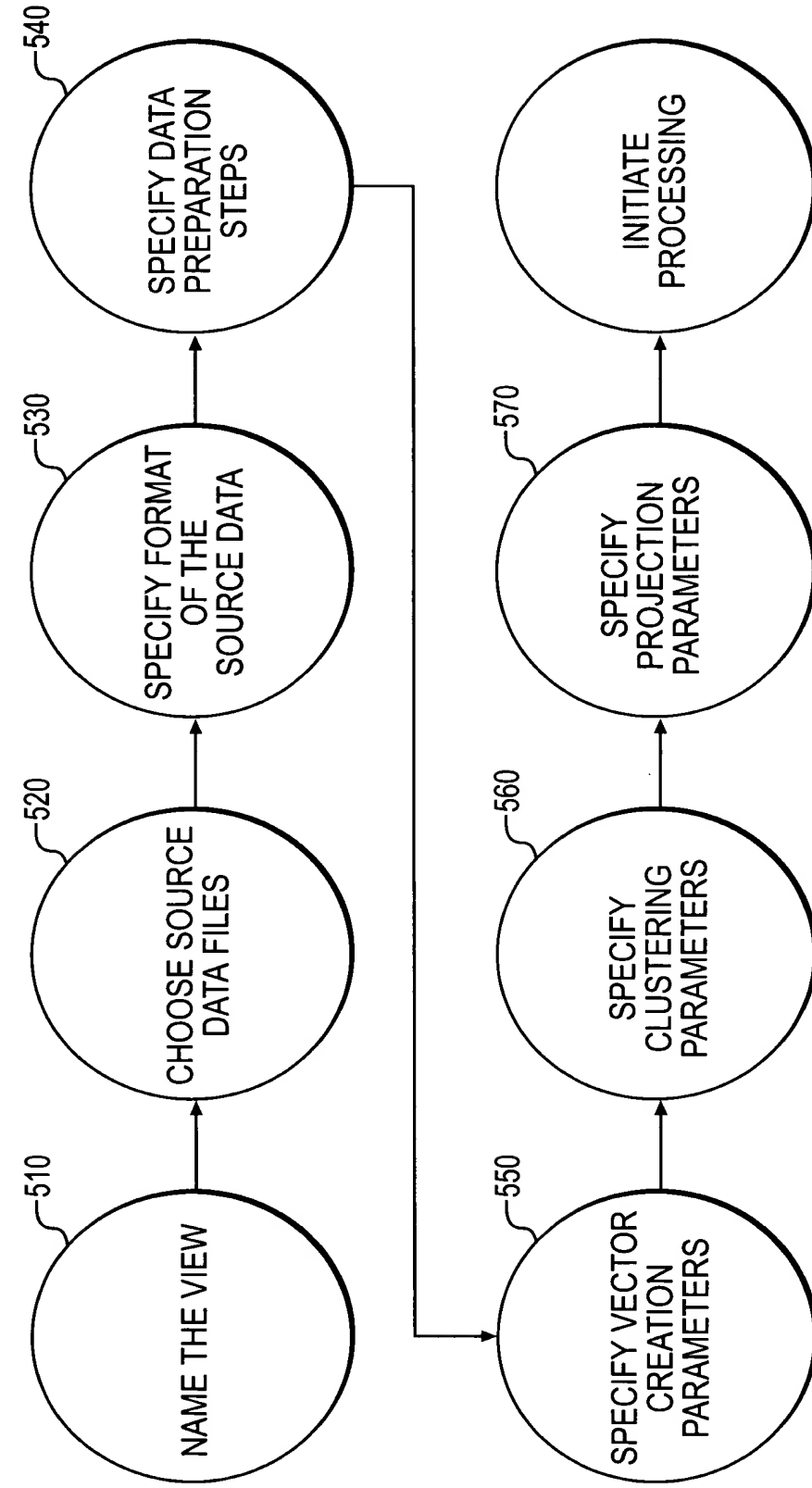


FIG. 5A



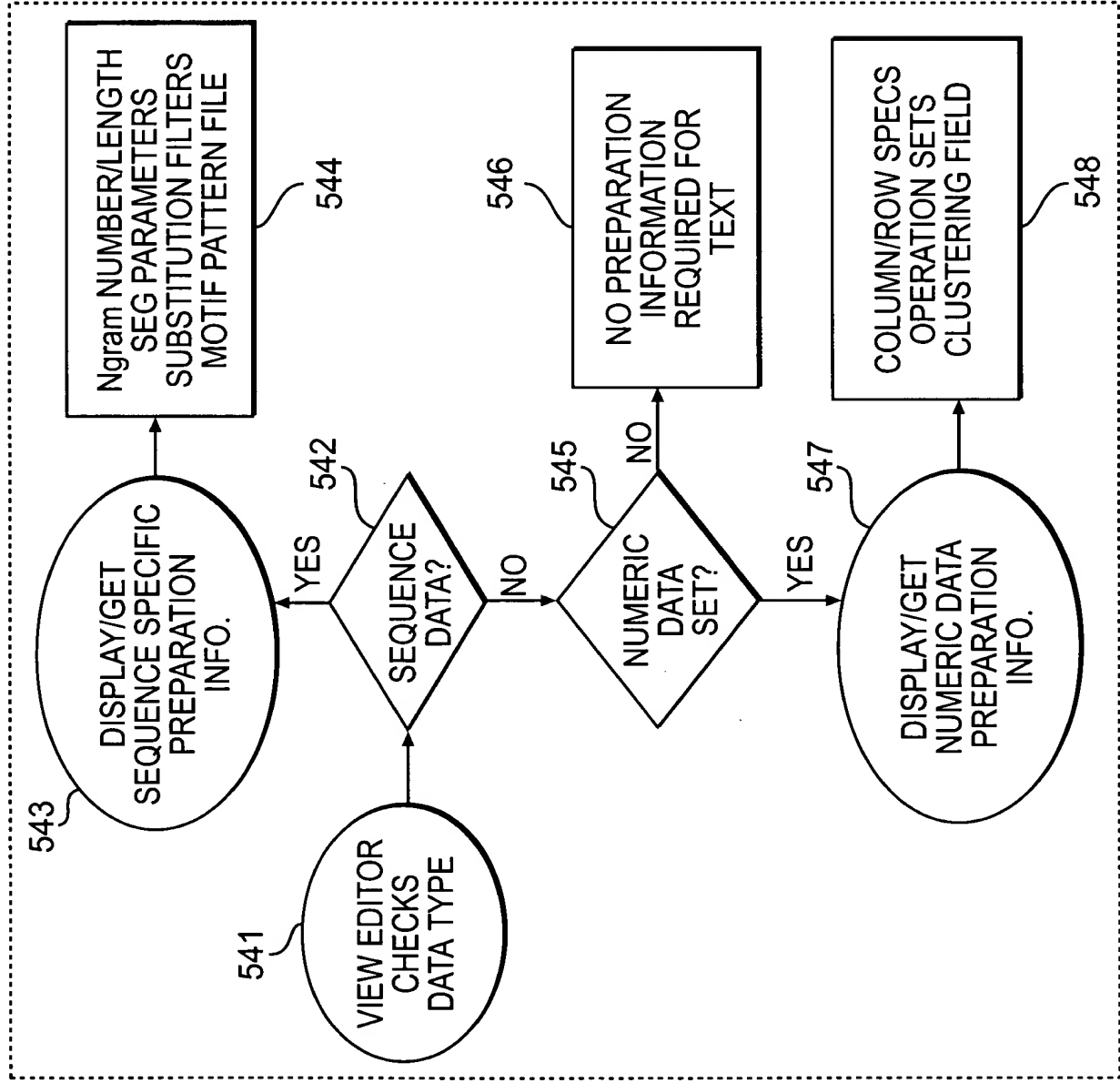


FIG. 5B

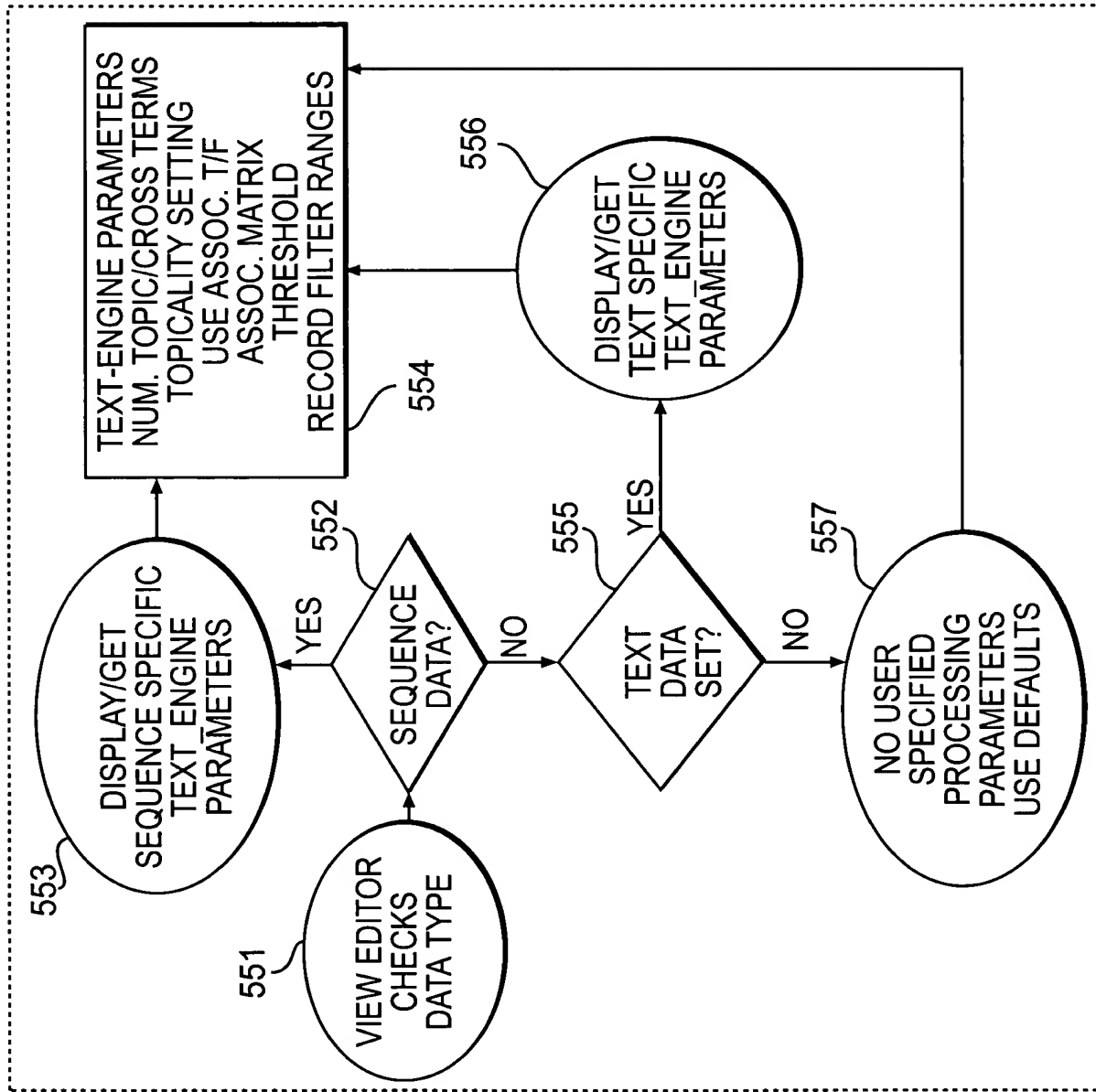


FIG. 5C

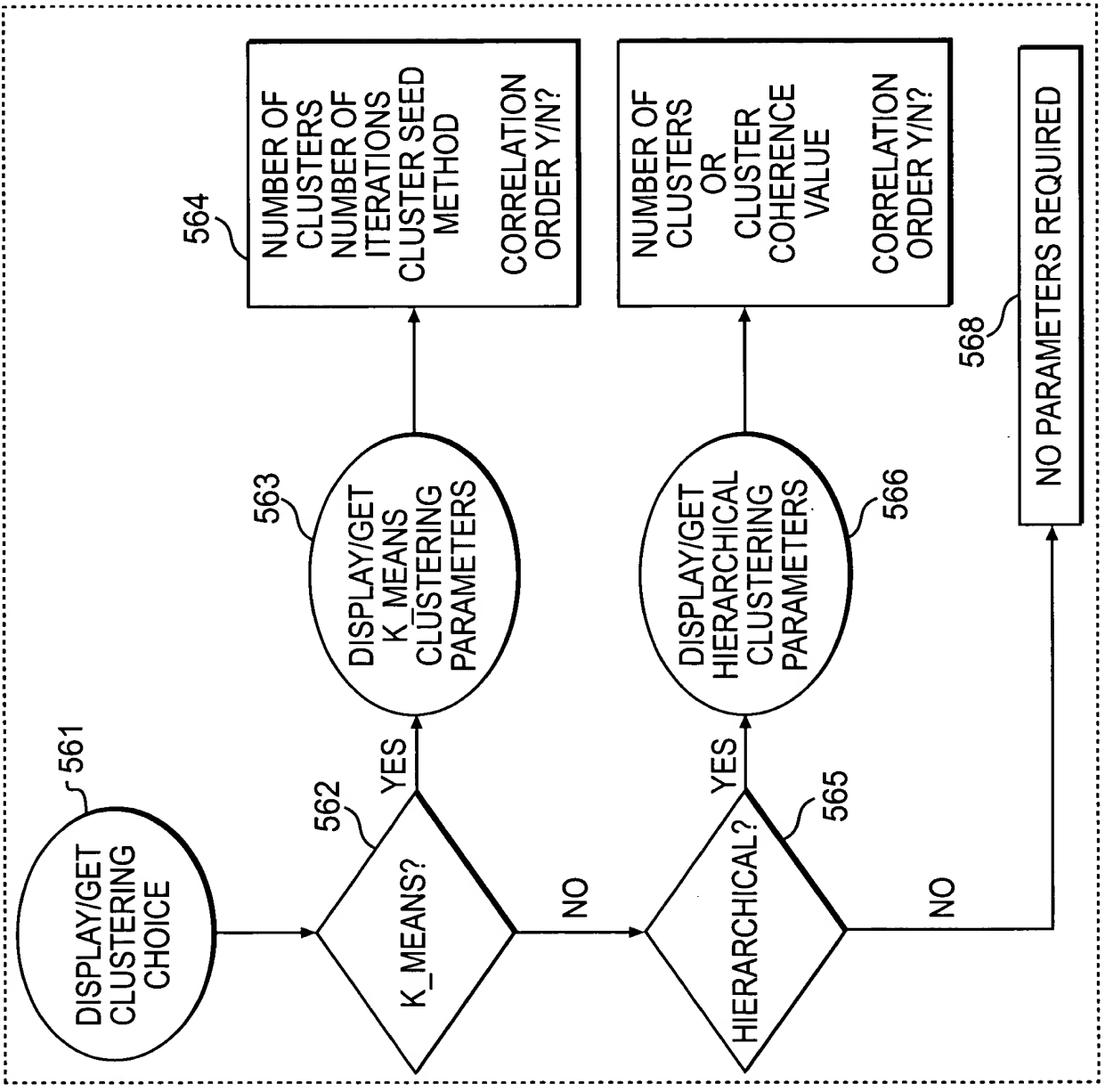
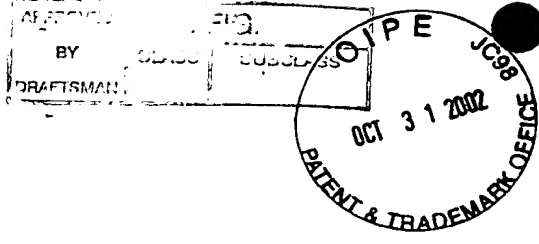


FIG. 5D





NEW VISUAL ANALYSIS: APOPTOSIS.DISEASE

1. VIEW NAME:

2. SOURCE FILES: 3. FORMAT 4. PREPARATION 5. PROCESSING 6. CLUSTERING 7. PROJECTION

610

612

614

616

620 622

620 622

620 622

CANCEL << PREVIOUS NEXT >> PROCESS LATER PROCESS NOW HELP

FIG. 6A

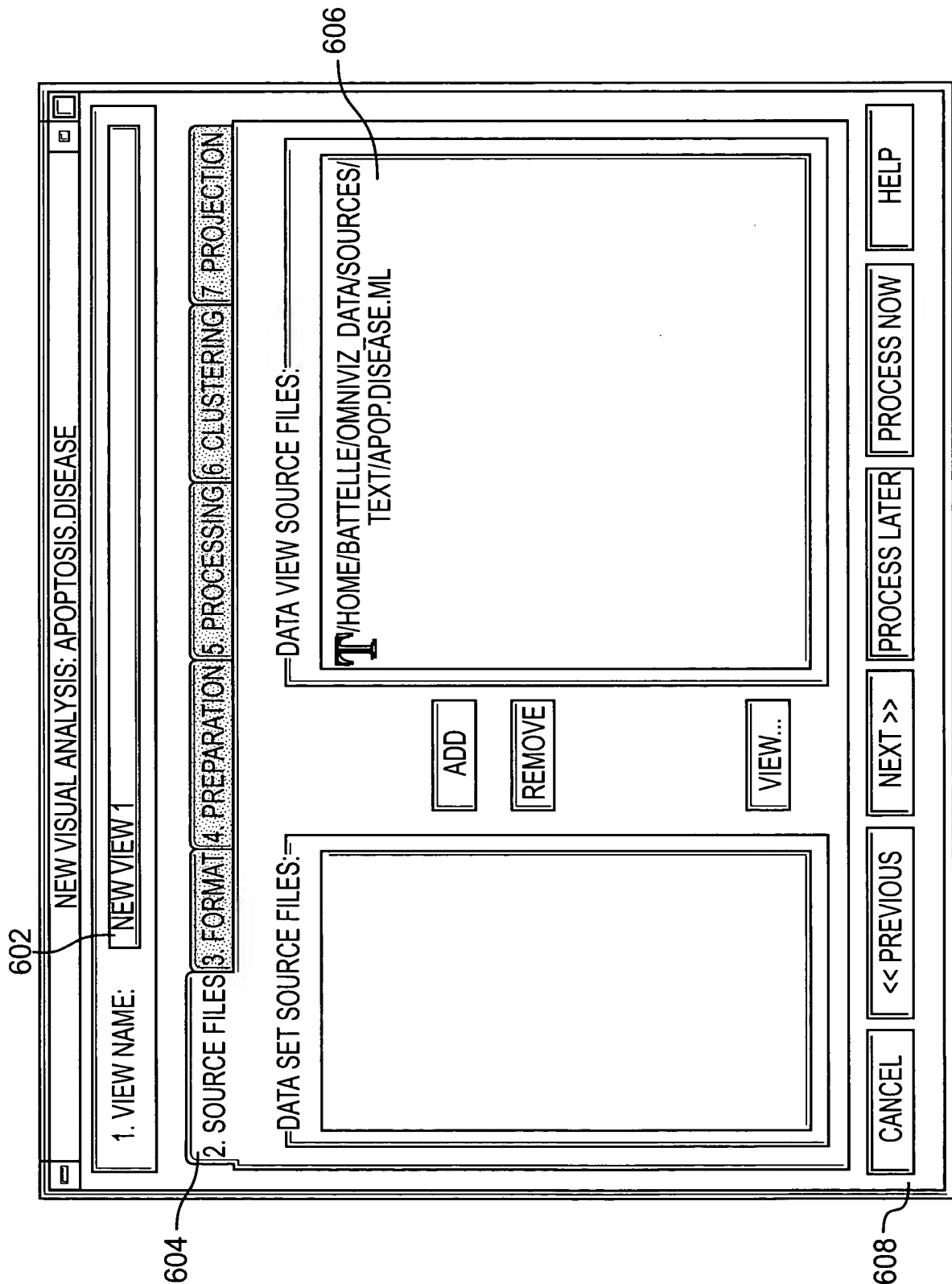
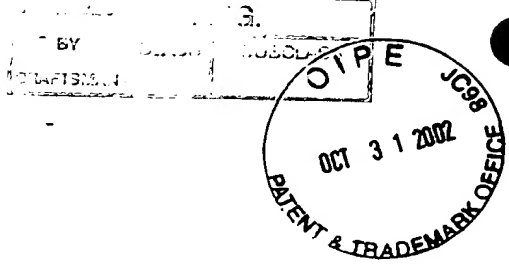


FIG. 6B



NEW VISUAL ANALYSIS: GE.775

1. VIEW NAME: NEW VIEW 1

2. SOURCE FILES 3. FORMAT 4. PREPARATION 5. PROCESSING 6. CLUSTERING 7. PROJECTION

4.1 DATA SPECIFICATION 4.2 OPERATION SET 4.3 CLUSTERING SELECTION 650

☐ TRANSPOSE DATA FILES

RECORD TITLE COLUMNS: 0 SELECT...

FIELD NAME	COLUMN(S)	DATA TYPE
NUMERIC FIELD NAME 1	1-3	NUMERIC
CATAGORICAL FIELD NAME 2	11-12	CATAGORICAL
SEQUENCE	10	SEQUENCE
TEXT FIELD NAME 2	4-5	TEXT

632 634 635 636 637 638

SELECT COLUMNS

ADD

ADD NUMERIC FIELD

ADD TEXT FIELD

ADD CATAGORICAL FIELD

ADD SEQUENCE FIELD

☒ USE SINGLE COLUMN HEADING FOR FIELD NAMES

CANCEL << PREVIOUS NEXT >> PROCESS LATER PROCESS NOW HELP

FIG. 6C

NEW VISUAL ANALYSIS: GE.775

1. VIEW NAME: NEW VIEW

2. SOURCE FILES

3. FORMAT

4. PREPARATION

5. PROCESSING

6. CLUSTERING

7. PROJECTION

4.1 DATA SPECIFICATION

4.2 OPERATION SET

4.3 CLUSTERING SELECTION

642

OPERATION SET NAME	NUMERIC FIELD	OPERATIONS
OPERATION SET 1	NUMERIC FIELD NAME 1	RECIPROCAL LOG(10)
		NEW OPERATION SET
		REMOVE OPERATION SET

644

645

AVAILABLE OPERATIONS

LOG(10)

IN

LOG(2)

ANTILOG(10)

ANTILOG(2)

ANTIIN

ADD OP

REMOVE OP

CURRENT OPERATION SEQUENCE

RECIPROCAL LOG(10)

646

CANCEL

<< PREVIOUS

NEXT >>

PROCESS LATER

PROCESS NOW

HELP

FIG. 6D



NEW VISUAL ANALYSIS: GE.775

1. VIEW NAME: NEWVIEW

2 SOURCE FILES3 FORMAT4. PREPARATION5. PROCESSING6 CLUSTERING7 PROJECTION

4.1 DATA SPECIFICATION4.2 OPERATION SET4.3 CLUSTERING SELECTION650

PLEASE SELECT WHICH FIELD/TRANFORM ON WHICH TO CLUSTER

OPERATION SET1

NUMERIC FIELD NAME1

CANCEL<< PREVIOUSNEXT >>PROCESS LATERPROCESS NOWHELP



FIG. 6E

NEW VISUAL ANALYSIS: YEAST.CELL.CYCLE

1. VIEW NAME: NEW PROTEIN VIEW

2. SOURCE FILES

3. FORMAT

4. PREPARATION

5. PROCESSING

6. CLUSTERING

7. PROJECTION

4.1 MOTIFS/INGRAMS

4.2 COMPLEXITY FILTERING

4.3 EXCLUSIONS

4.4 AMINO ACID SUBSTITUTIONS

☒ SINGLE MOTIF OUTPUT

MOTIF PATTERN FILES

/HOME/BATTELLE/PROSITE.MOTIFS

ADDDELETE

MOTIF PARAMETERS

NGRAM LENGTHS/MINIMUM FREQUENCIES

11

21

31

41

51

61

71

81

91

101

CANCEL

<< PREVIOUS

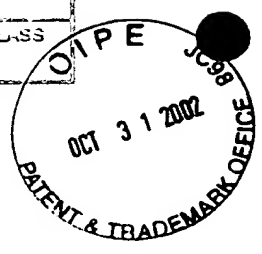
NEXT >>

PROCESS LATER

PROCESS NOW

HELP

FIG. 6F



NEW VISUAL ANALYSIS: APOPTOSIS.DISEASE

1. VIEW NAME: NEW VIEW 1

2 SOURCE FILES 3 FORMAT 4 PREPARATION 5. PROCESSING 6 CLUSTERING 7 PROJECTION

670

TOPICALITY METHOD: SPECIFY SETTINGS BY NUMBER OF TERMS

WEAK

672

0.00

0.20

1.00

STRICT

☐ DO NOT USE ASSOCIATIONS

REQUESTED NUMBER OF TOPICS: 200 674

REQUESTED NUMBER OF CROSS TERMS: 2000 676

TOPICS MUST APPEAR IN 20 BUT NO MORE THAN RECORDS.

CROSS TERMS MUST APPEAR IN 20 BUT NO MORE THAN RECORDS.

CANCEL

<< PREVIOUS

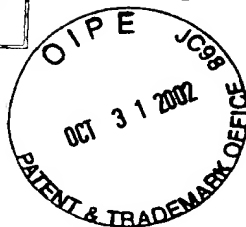
NEXT >>

PROCESS LATER

PROCESS NOW

HELP

FIG. 6G



NEW VISUAL ANALYSIS: APOPTOSIS.DISEASE

1. VIEW NAME: NEW VIEW 1

2. SOURCE FILES3. FORMAT4. PREPARATION5. PROCESSING6. CLUSTERING7. PROJECTION

TOPICALITY METHOD: SPECIFY SETTINGS BY THRESHOLD

WEAK0.006801.00STRICT

☐ DO NOT USE ASSOCIATIONS

MINIMUM TOPICALITY FOR TOPICS:0.002.6010.00

MINIMUM TOPICALITY FOR CROSS TERMS:0.001.8010.00

TOPICS MUST APPEAR IN20686aBUT NO MORE THAN686bRECORDS.

CROSS TERMS MUST APPEAR IN20688aBUT NO MORE THAN688bRECORDS.

CANCEL

<< PREVIOUS

NEXT >>

PROCESS LATER

PROCESS NOW

HELP

FIG. 6H





19/48

NEW VISUAL ANALYSIS: APOPTOSIS.DISEASE

1. VIEW NAME: NEW VIEW 1

2 SOURCE FILES 3 FORMAT 4 PREPARATION 5 PROCESSING 6 CLUSTERING 7 PROJECTION

TOPICALITY METHOD: AUTOMATICALLY CALCULATE SETTINGS

WEAK 0.00 0.20 1.00 STRICT

☐ DO NOT USE ASSOCIATIONS

CANCEL << PREVIOUS NEXT >> PROCESS LATER PROCESS NOW HELP

FIG. 6I

NEW VISUAL ANALYSIS: APOPTOSIS.DISEASE

1. VIEW NAME: NEWVIEW 1

2 SOURCE FILES 3 FORMAT 4 PREPARATION 5. PROCESSING 6. CLUSTERING 7. PROJECTION

TOPICALITY METHOD: AUTOMATICALLY CALCULATE SETTINGS, WITH EMPHASIS ON LOCAL TOPICS ▾

WEAK ☐ 0.00 ☐ 0.20 ☐ 1.00 STRICT

☐ DO NOT USE ASSOCIATIONS

CANCEL << PREVIOUS NEXT >> PROCESS LATER PROCESS NOW HELP

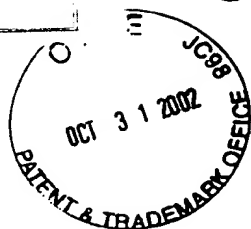


FIG. 6J

NEW VISUAL ANALYSIS: APOPTOSIS.DISEASE

1. VIEW NAME: NEW VIEW 1

2. SOURCE FILES 3. FORMAT 4. PREPARATION 5. PROCESSING 6. CLUSTERING 7. PROJECTION

CLUSTERING METHOD: HIERARCHICAL

☐ COMPUTE CLUSTERS BASED ON COHERENCE

NUMBER OF CLUSTERS: 50

CLUSTER COHERENCE: 70

☒ CORRELATION ORDER AFTER CLUSTERING

CANCEL << PREVIOUS NEXT >> PROCESS LATER PROCESS NOW HELP



FIG. 6K

NEW VISUAL ANALYSIS: APOPTOSIS.DISEASE

1. VIEW NAME: NEW VIEW 1

2. SOURCE FILES 3. FORMAT 4. PREPARATION 5. PROCESSING 6. CLUSTERING 7. PROJECTION

CLUSTERING METHOD: KMEANS

NUMBER OF CLUSTERS: 50

NUMBER OF ITERATIONS: 500

CLUSTER SEEDING:
☒ USE RANDOM SEEDING
☐ USE DIMENSIONAL SEEDING
☐ USE SYSTEM TIME TO SEED RANDOM NUMBER GENERATOR
RANDOM GENERATOR SEED:

☒ CORRELATION ORDER AFTER CLUSTERING

CANCEL << PREVIOUS NEXT >> PROCESS LATER PROCESS NOW HELP









FIG. 6L

NEW VISUAL ANALYSIS: APOPTOSIS.DISEASE

1. VIEW NAME:

2. SOURCE FILES 3. FORMAT 4. PREPARATION 5. PROCESSING 6. CLUSTERING 7. PROJECTION

CLUSTER COHESION:    3.5 5.0

CLUSTER AREA:    0.0 10.0




CLUSTER SPREAD:    1.0 20.0



FIG. 6M

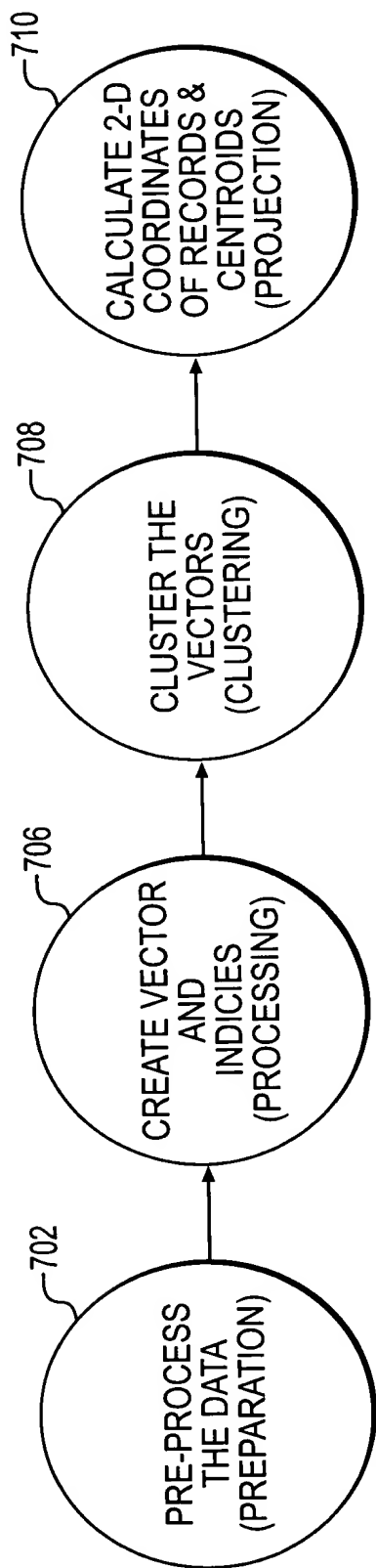


FIG. 7A



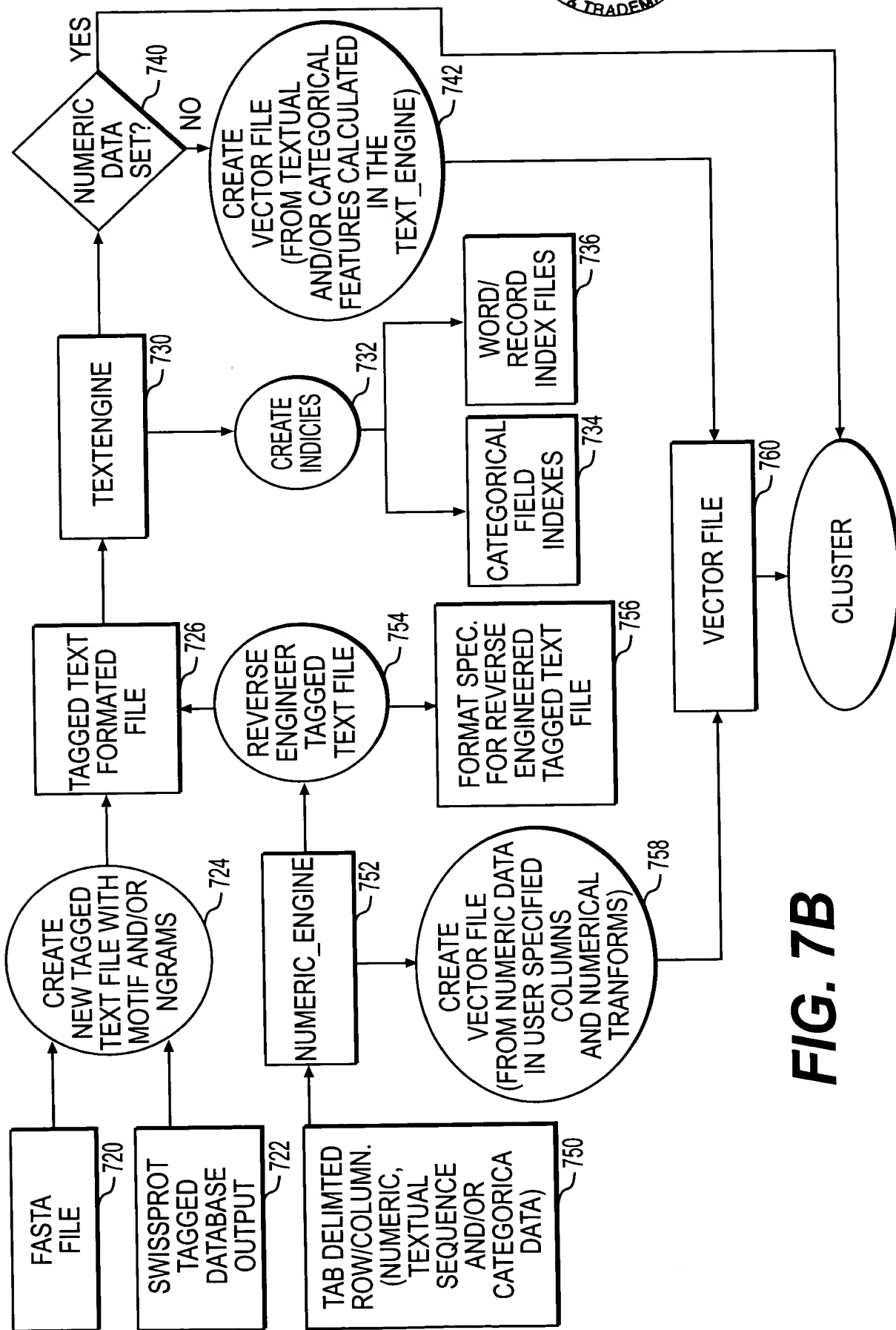


FIG. 7B

```

NAME=SPROT-ANO
DESC=SWISSPROT ANNOTATIONS
END_DESC
DELIMITER=//

IIFO
  NAME=TITLE
  TYPE=STRING
  TAG=DE
  METHOD=LINES:1
  DOC_VECTOR=FALSE
  SEARCH=TRUE
  CORR=TRUE
  CASE_SENSITIVE=TRUE
  WHOLE_BOUNDARY=TRUE
  LINEPOS=START
IIF1
...
IIF....

```

```

;CORPUS NAME
;CORPUS DESCRIPTION
;RECORD DELIMITER TAG

;FIELD NUMBER
;NAME OF THE FIELD
;DATA TYPE OF THIS FIELD (STRING, NUMERIC, SEQUENCE)
;FIELD TAG AS IT APPEARS IN THE SOURCE FILE
;DATA IS ON A SINGLE LINE
;DON'T USE THIS FIELD FOR THE DOCUMENT VECTOR
;MAKE THIS FIELD SEARCHABLE
;USE THIS FIELD TO MAKE CATEGORIES
;CASE SENSITIVE
;THE TITLE TAG MUST BE A WORD (WHITE SPACE DELIMITED)
;THE FIELD TAG ALWAYS STARTS AT THE BEGINNING OF A LINE

```

804

FIG. 8



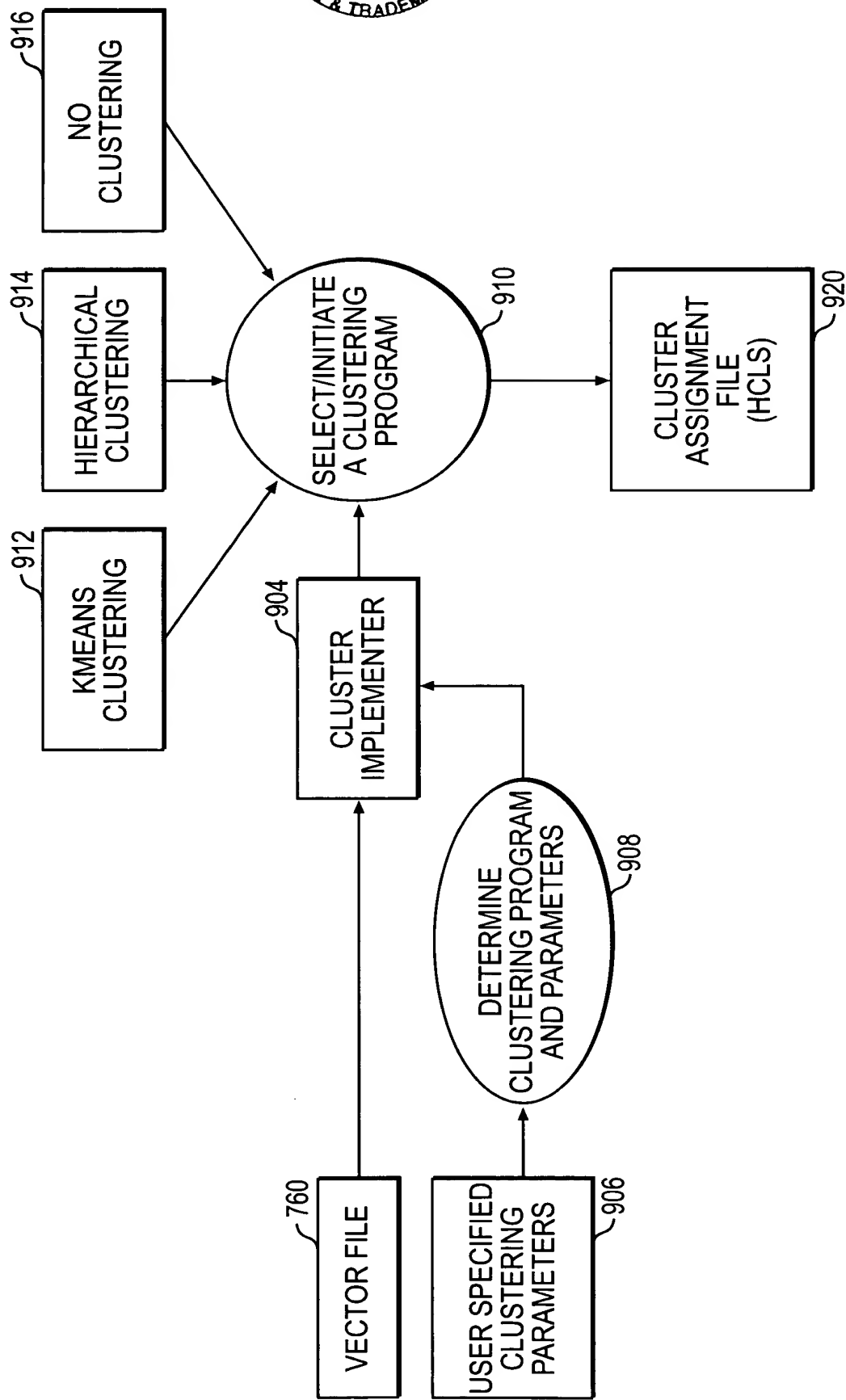


FIG. 9

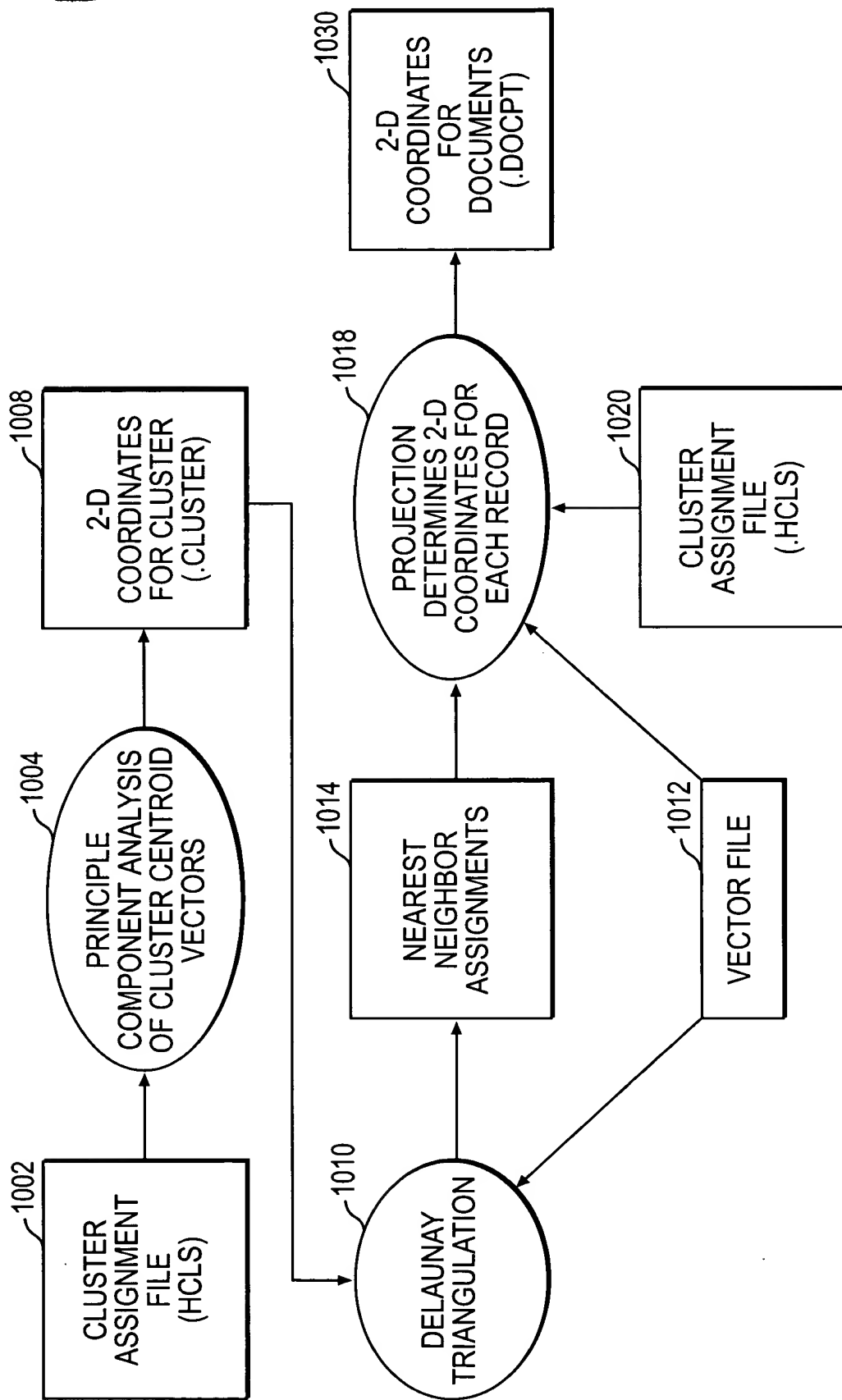


FIG. 10



CREATE READ UPDATE

FILE NAME	SET UP		PROCESSING PROGRAMS							INTERACTIVE TOOLS AND GRAPHICS									
			VECTOR CREATE																
	DATASET EDITOR	VIEW EDITOR	NUMERIC_ENGINE	TEXT_ENGINE	K_MEANS	CLUSTER_SID	CORRELATIONORDER	PCA_CLUSTERS	TRIANGLE	DOCPROJECTION	GALAXY	SURFACE MAP	MASTER QUERY	PLOT DATA	RECORD VIEWER	QUERY (WORD)	QUERY (NUM)	GROUP	GIST
<DATASETNAME>.DCAT	C														R				
<DATASETNAME>.PROPERTIES	C										R								
<VIEWNAME>.CLSP		C			R	R				R									
<VIEWNAME>.CLUSTER							C		C										
<VIEWNAME>.CORRV				C								R							
<VIEWNAME>.DCAT				C										R					
<VIEWNAME>.DOCPT									C	R									
<VIEWNAME>.DOCTERM				C												R			R
<VIEWNAME>.DOCTERM_INDEX				C												R			R
<VIEWNAME>.DOCV (VECTOR)				C	R	R	R			R	R	R		R			R		
<VIEWNAME>.EDGE									C	R									
<VIEWNAME>.FIELD_OFF				C									R	R	R	R			
<VIEWNAME>.GIF			C								R								
<VIEWNAME>.GROUPS																		U	
<VIEWNAME>.FMT			C	R								R	R	R	R	R	R		
<VIEWNAME>.HCLS					C	C	R			R	R	R	R		R				
<VIEWNAME>.HEADINGS			C								R	R		R			R		
<VIEWNAME>.IFI				C												R			
<VIEWNAME>.IFI_INDEX				C												R			
<VIEWNAME>.PROPERTIES	U	U	U	U	U	U	U	U	U	U	R	R							
<VIEWNAME>.PUNC			C	R												R	R		
<VIEWNAME>.REL				C													R		
<VIEWNAME>.REPOSITORY											R	R	R	R	R	R	R	R	R
<VIEWNAME>.STOP			C	R													R		
<VIEWNAME>.TL				C							R	R	R	R	R	R			
<VIEWNAME>.TOPIC				C													R		
<VIEWNAME>.VOCAB				C												R			R
<VIEWNAME>.VOCAB_INDEX				C												R			R
TAB DELIMITED COLUMN/ROW SOURCE			R																
TAGGED TEXT SOURCE FILE(S)			C	R											R				
REENGINEERED TAGGED TEXT SOURCE		C	R	R											R				

FIG. 11

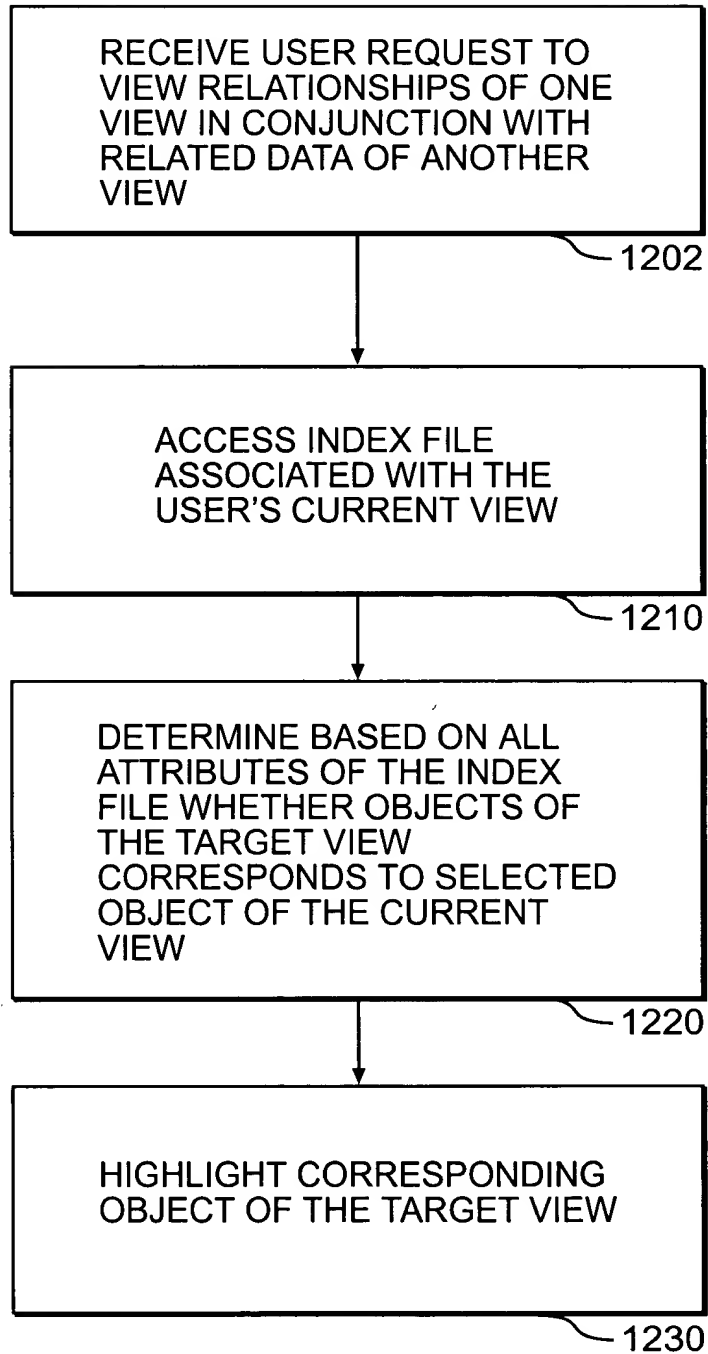


FIG. 12

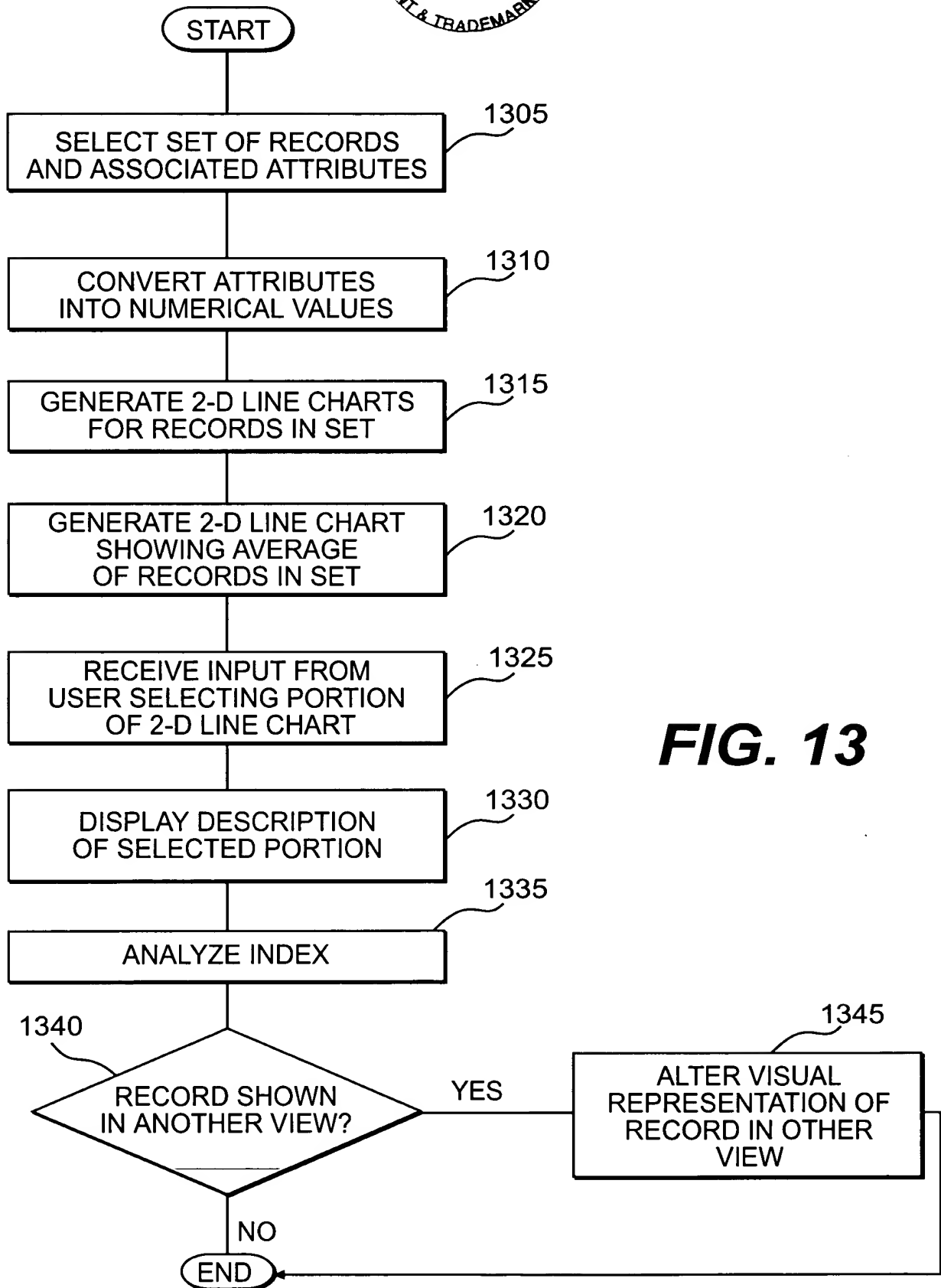
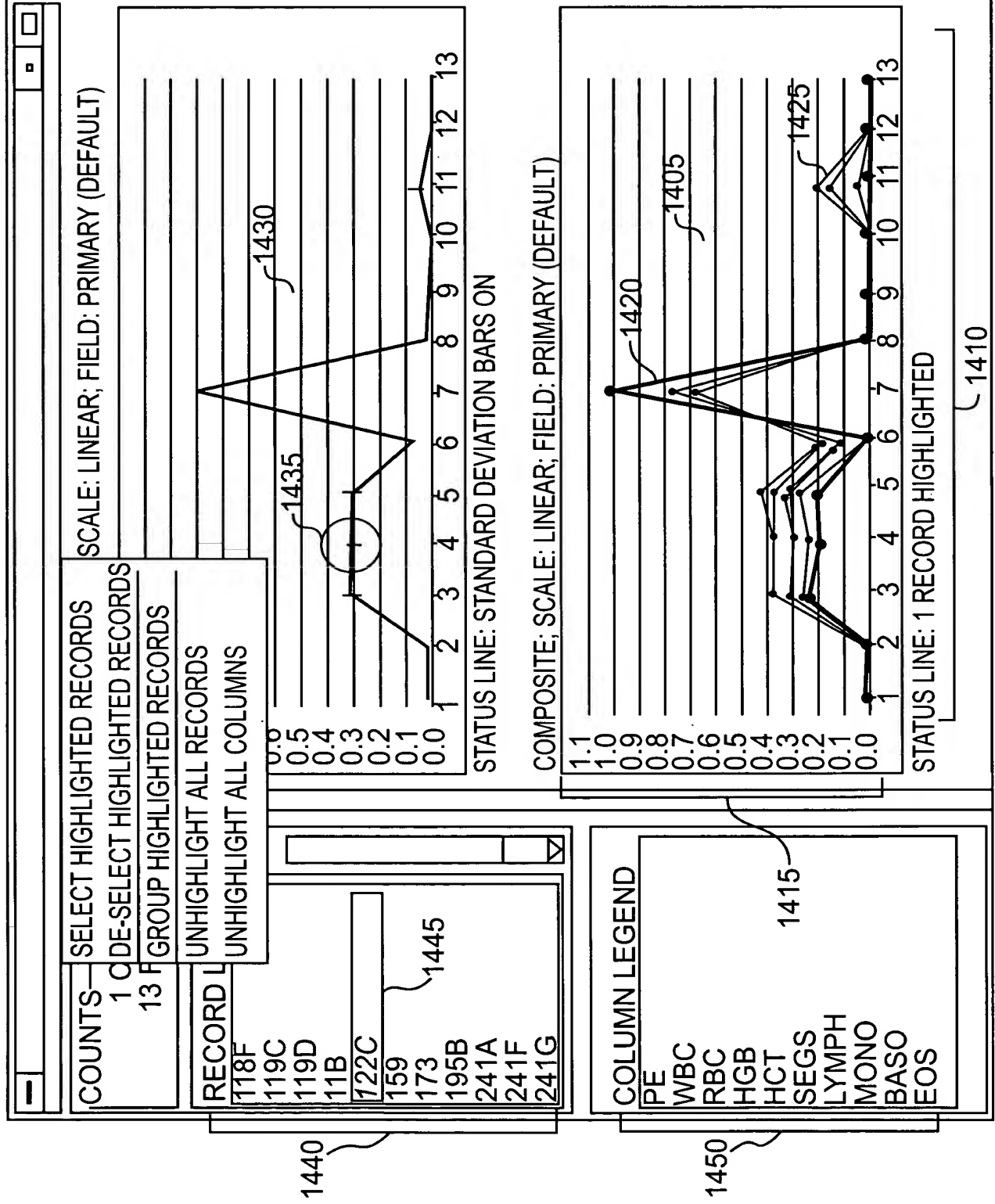


FIG. 13



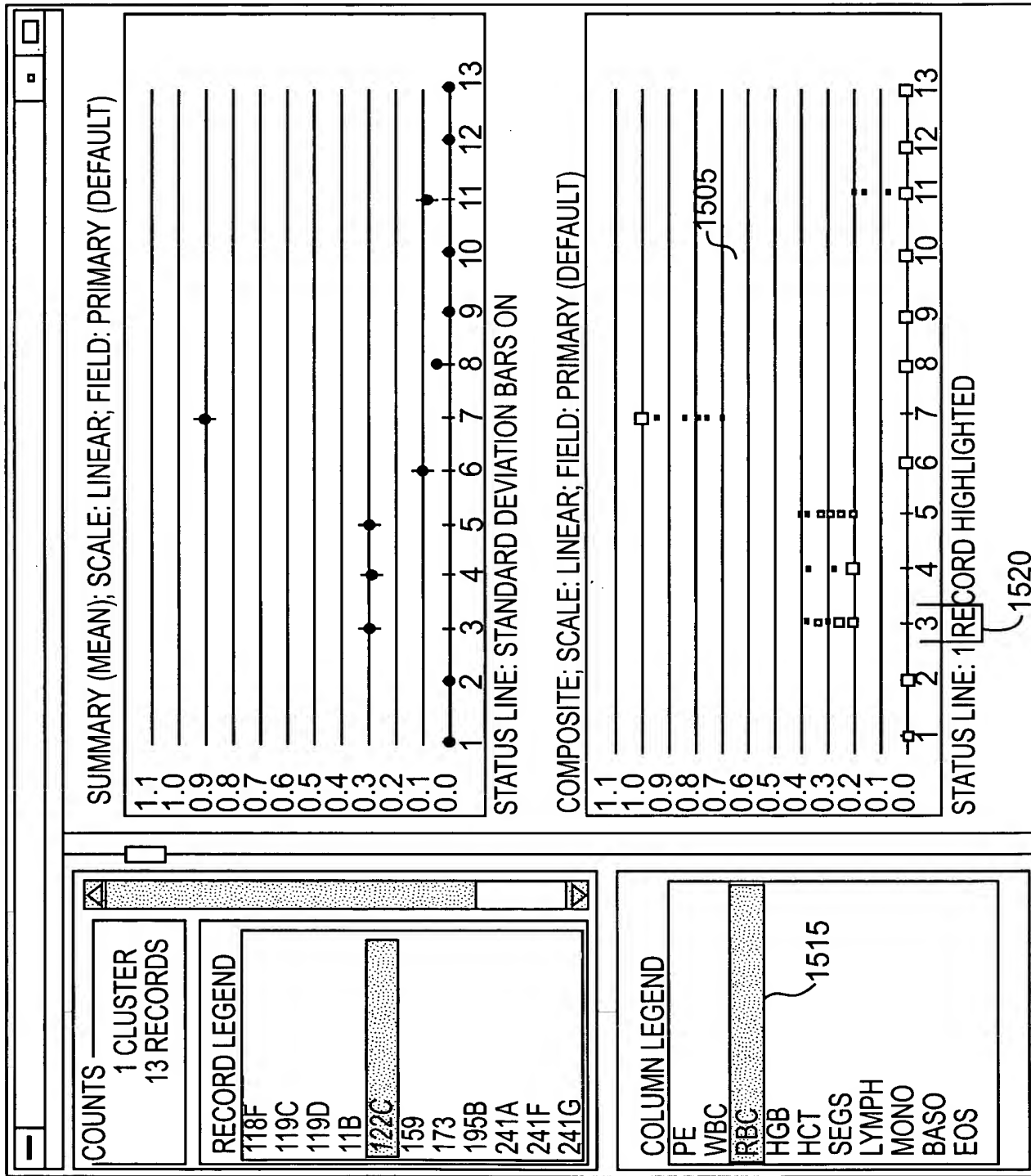


FIG. 15



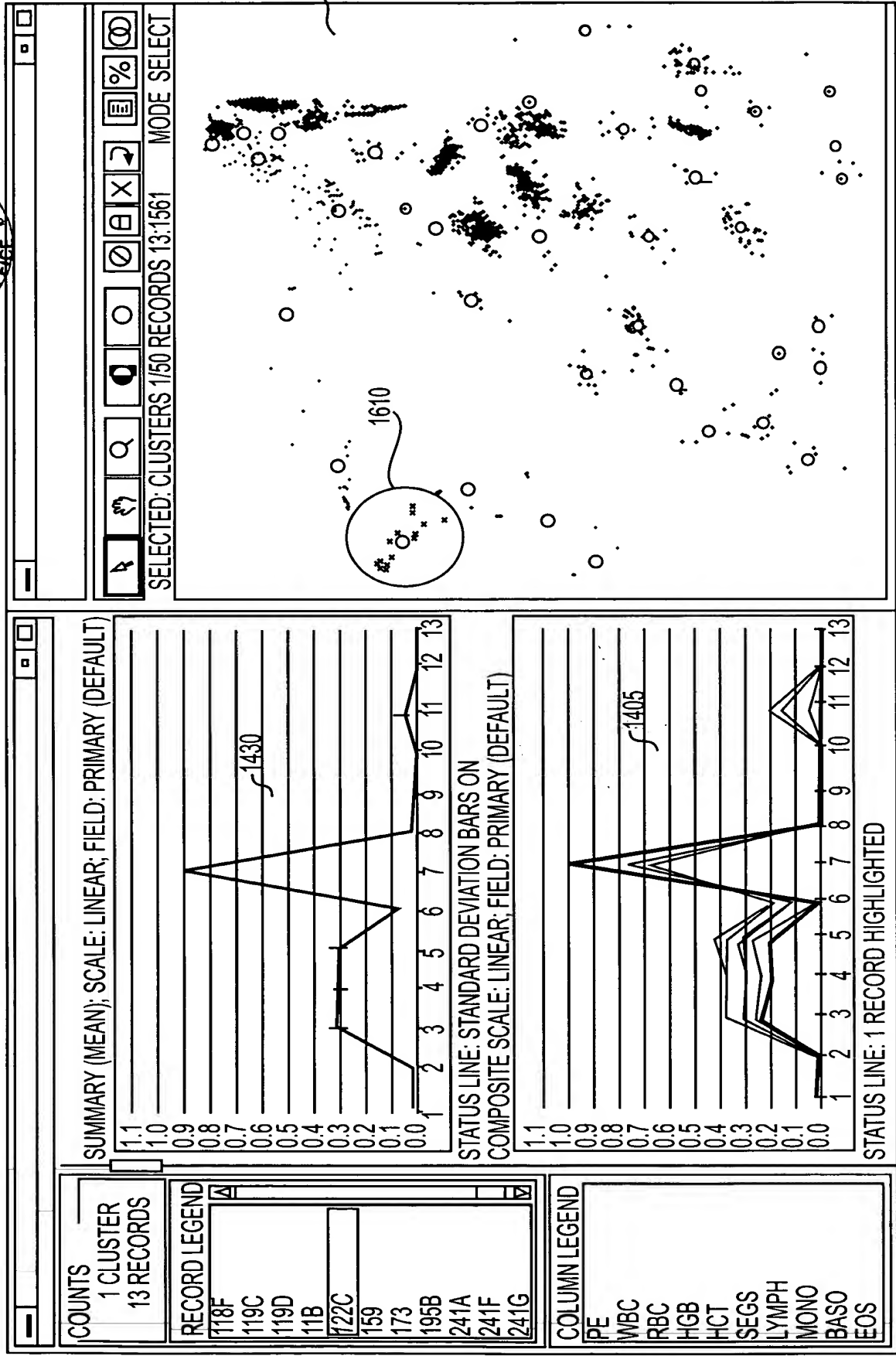
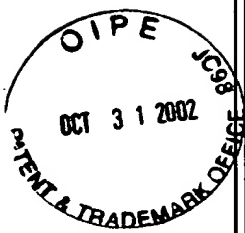


FIG. 16

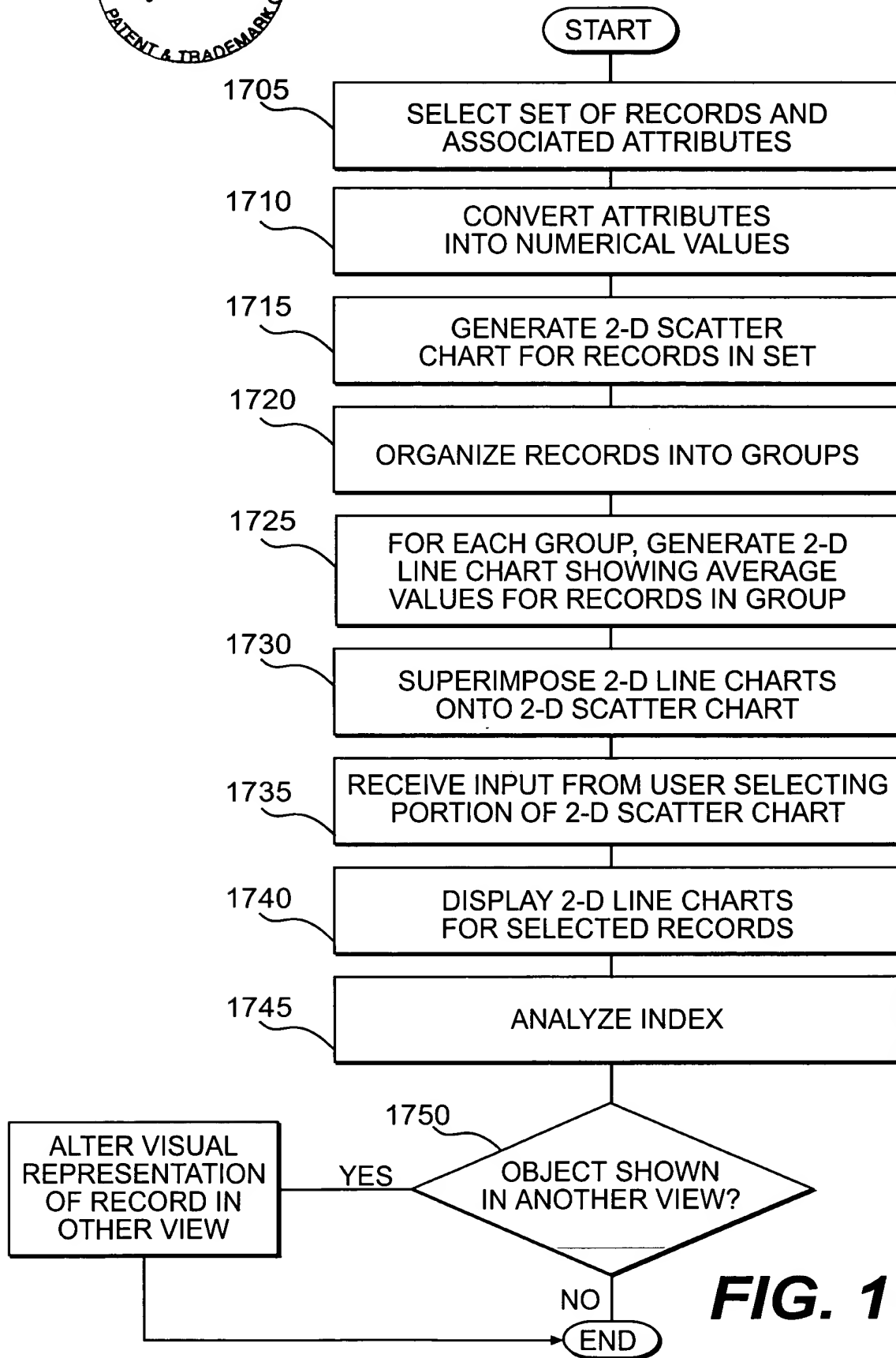
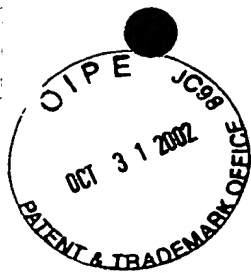


FIG. 17

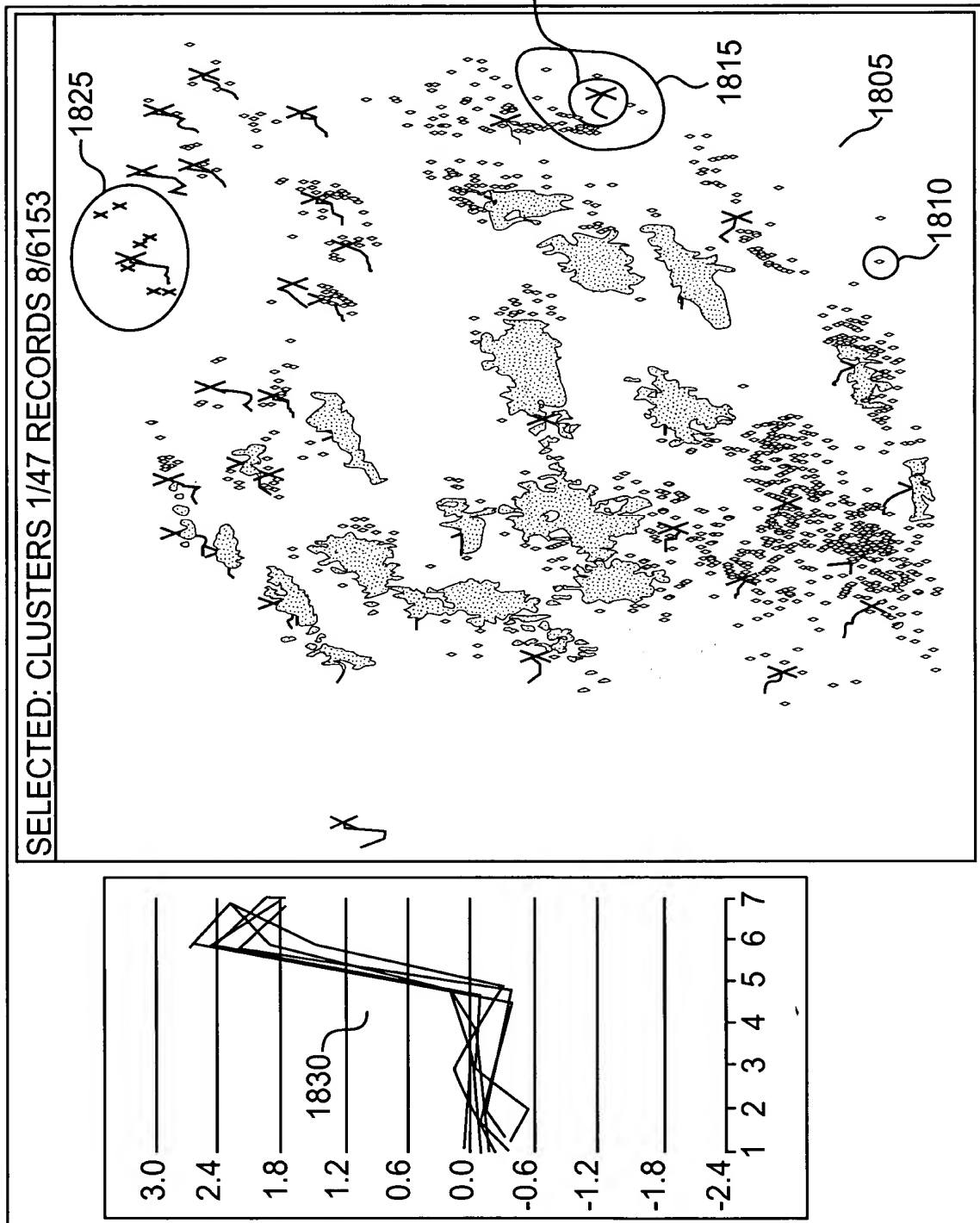


FIG. 18

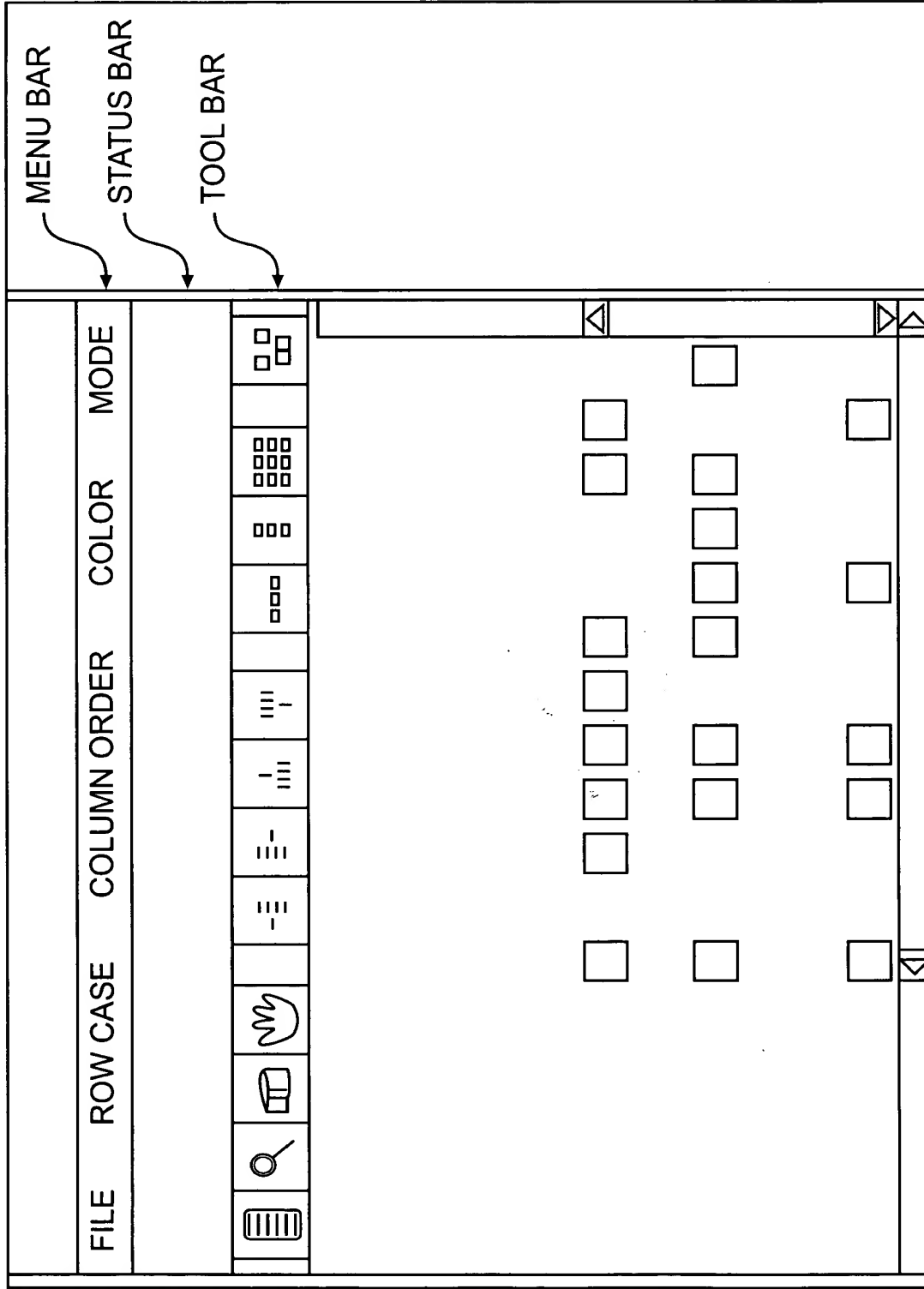


FIG. 19

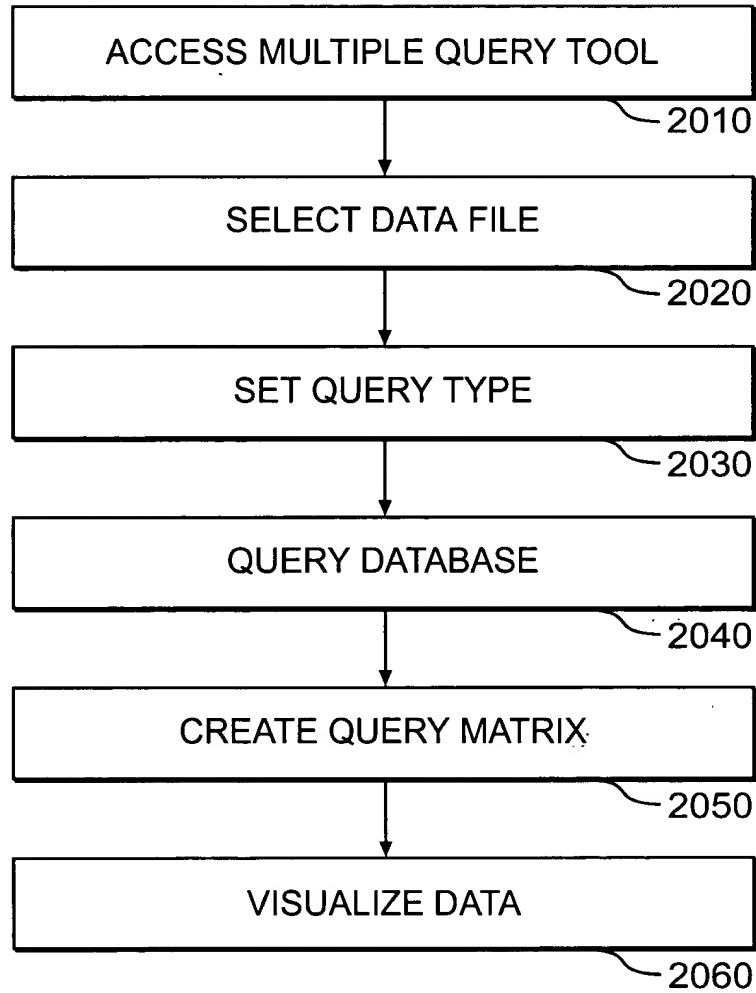


FIG. 20

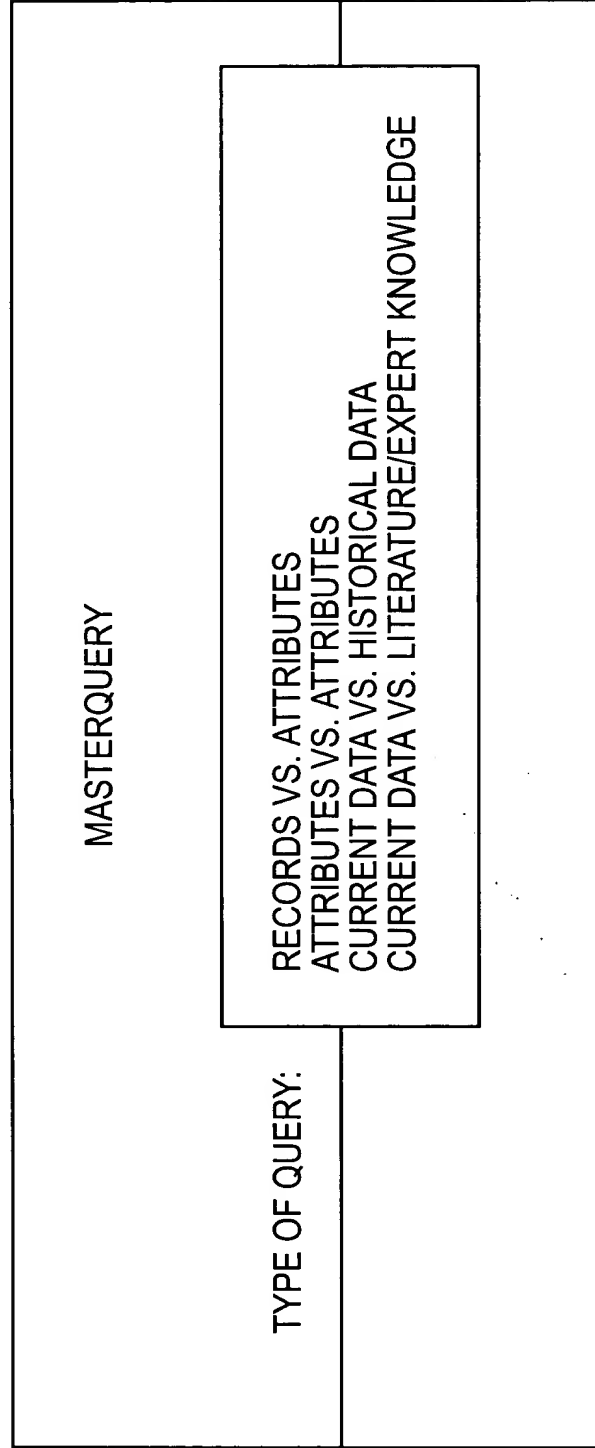


FIG. 21

RECORDS VS. ATTRIBUTES

☒ VOCABULARY WORD(S)

☐ VOCABULARY FILE

☐ CATEGORY FIELD(S)

☐ CATEGORY FILE

2210

2220

ATTRIBUTE SOURCES

TYPE IN WORDS, SEPARATED BY SEMICOLON

2250

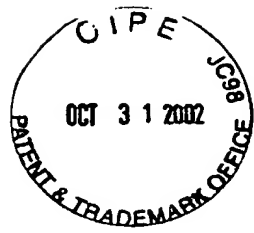
DROP DOWN LIST OF FIELDS

2240

2230

2200

FIG. 22A



ATTRIBUTES VS. ATTRIBUTES

ROW ATTRIBUTE

☒ VOCABULARY WORD(S) TYPE IN WORDS, SEPARATED BY

☐ VOCABULARY FILE

☐ CATEGORY FIELD(S)

☐ CATEGORY FILE

COLUMN ATTRIBUTE

☒ VOCABULARY WORD TYPE IN WORDS, SEPARATED BY

☐ VOCABULARY FILE

☐ CATEGORY FIELD

☐ CATEGORY FILE

2260

FIG. 22B

CURRENT DATA VS HISTORICAL DATA

☒ PREVIOUS VISUALIZATION

☐ DATA MATRIX FILE(S)

HISTORICAL DATA FOR COMPARISON

☐ BROWSE

☐ BROWSE

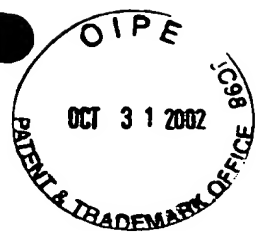
☐ CLEAR

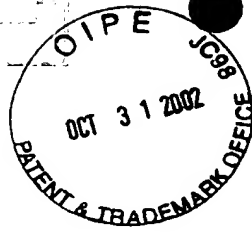
☐ CANCEL

☐ DONE

2270

FIG. 22C





	ATTRIBUTE_1	ATTRIBUTE_2	ATTRIBUTE_3	ATTRIBUTE_4	ATTRIBUTE_5	ATTRIBUTE_6
RECORD_1	1	1	1	1	0	0
RECORD_2	0	1	1	1	1	0
RECORD_3	0	1	1	1	0	0
RECORD_4	1	0	1	1	0	0
RECORD_5	1	1	1	0	1	1
RECORD_6	0	1	0	1	0	0

FIG. 23



	ATTRIBUTE1	ATTRIBUTE2	ATTRIBUTE3	ATTRIBUTE4	ATTRIBUTE5	ATTRIBUTE6
RECORD_1						
RECORD_2						
RECORD_3						
RECORD_4						
RECORD_5						
RECORD_6						

FIG. 24

	ATTRIBUTE1	ATTRIBUTE2	ATTRIBUTE3	ATTRIBUTE4	ATTRIBUTE5	ATTRIBUTE6
CLUSTER_1						
CLUSTER_2						
CLUSTER_3						

FIG. 25

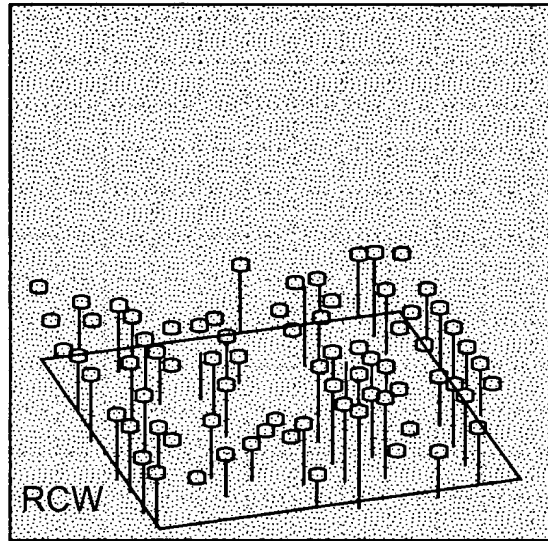


FIG. 26

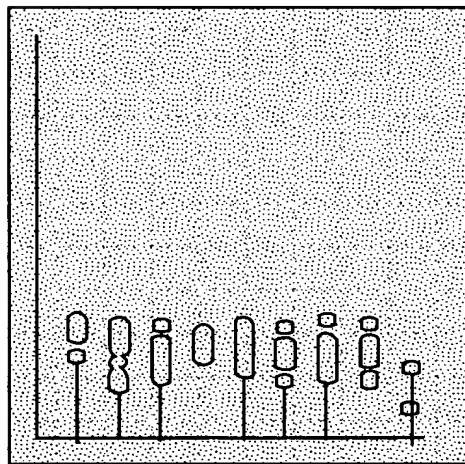


FIG. 27

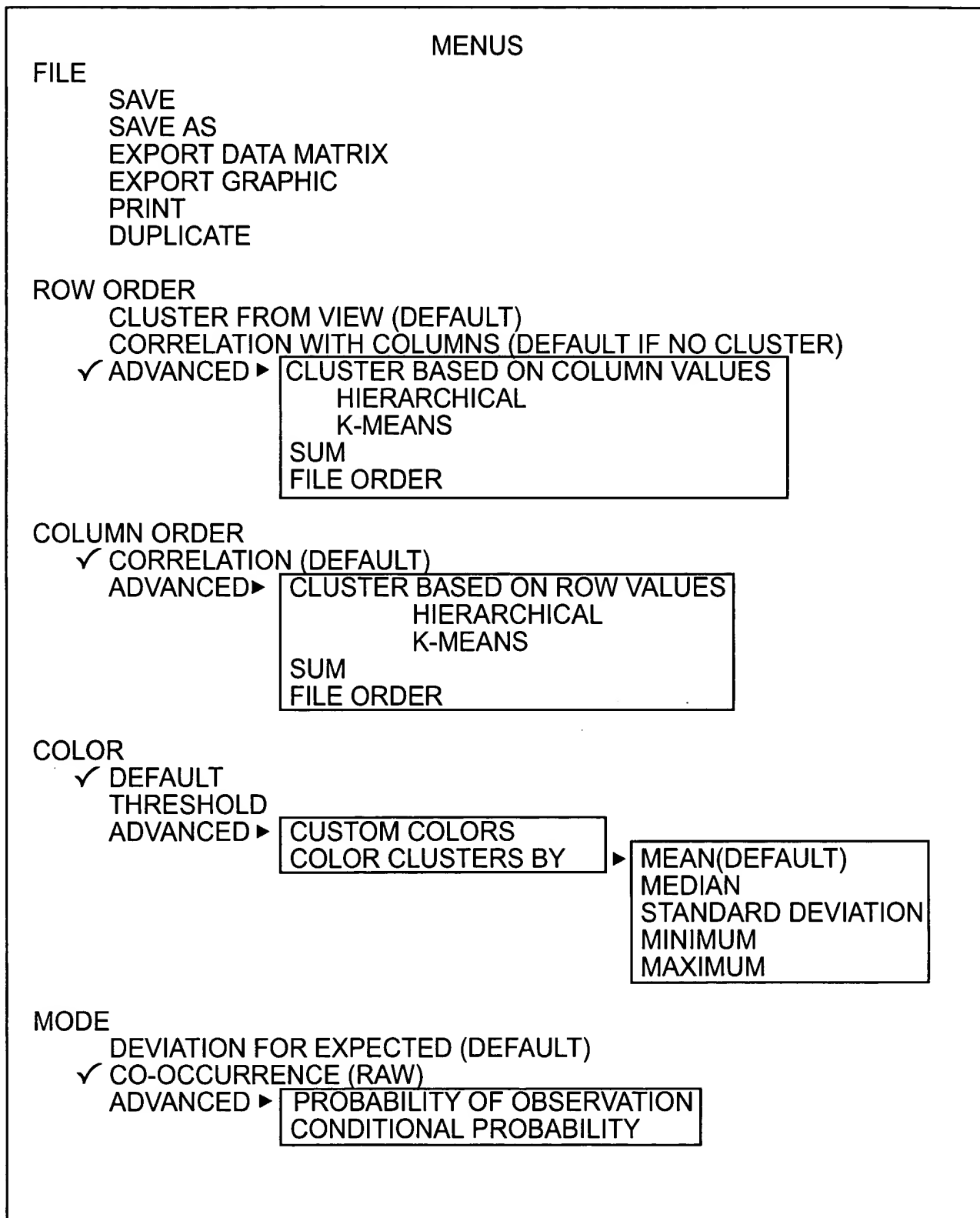


FIG. 28



TOOL BAR

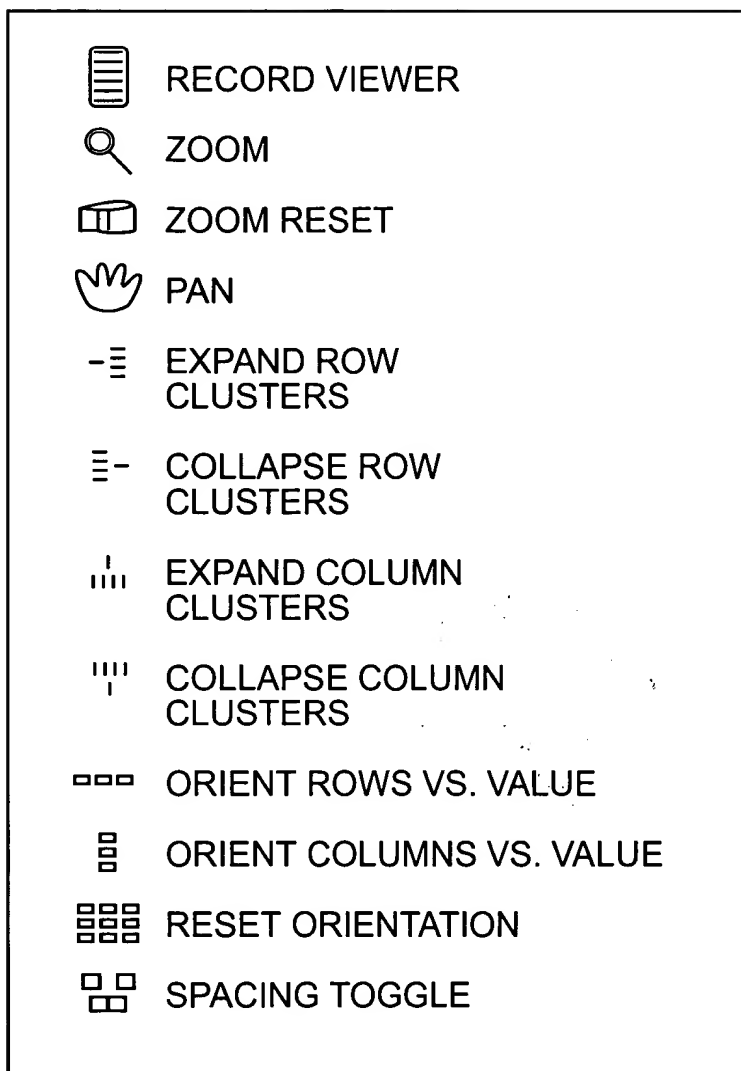


FIG. 29

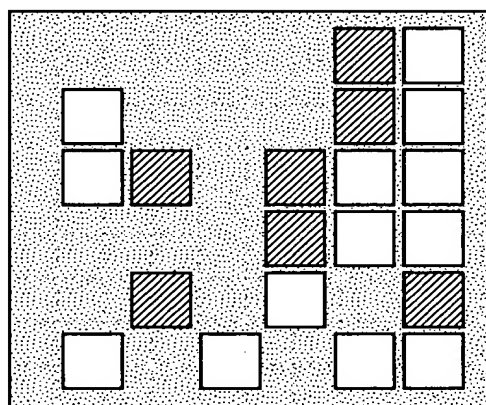
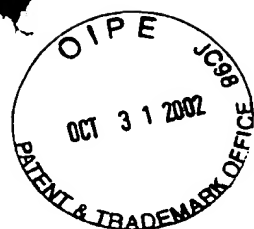


FIG. 30A

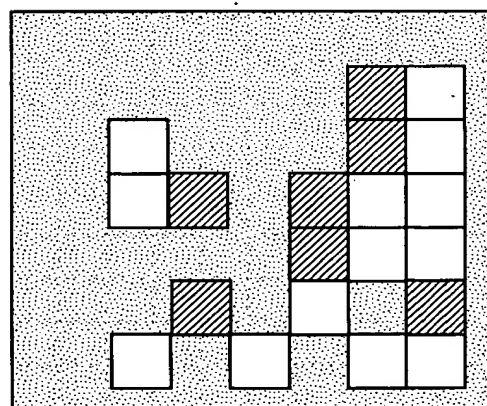


FIG. 30B